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ABSTRACT

Vocational Education can play a key role in revitalizing the American economy particularly through research and development in four areas: economic development and productivity, equity and access, youth employment, and energy. It can enhance productivity by identifying innovative vocational education programs successful in enhancing community and economic development, developing entrepreneurship training, aiding in vocational agriculture teacher preparation, developing curricula that addresses community economic development needs, and emphasizing new technologies and leadership development opportunities. Research and demonstration projects can aid in expanding vocational educational opportunities for women, minorities, and handicapped persons. Vocational education can play a key part in reducing youth unemployment by providing in-school and out-of-school programs for disadvantaged youth. It has already begun to respond to emerging industries and technologies needed for the energy crisis. The National Center for Research in Vocational Education can assist in this endeavor by improving national dissemination and utilization of research and development products focusing on the four priorities mentioned above, examining and describing critical issues confronting vocational education, assisting in strengthening the nationwide vocational education research and development system, and improving articulation among education, business, industry, labor, and economic development agencies. (MN)

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Occasional Paper No. 64

REVITALIZING THE AMERICAN ECONOMY: A RESEARCH AND DEVELOPMENT FOCUS FOR THE 80s

by

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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THE NATIONAL CENTER MISSION STATEMENT

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

FOREWORD

The purpose of the National Center for Research in Vocational Education's Occasional Paper series is to present distinguished lecturers speaking on topics of interest to the vocational community. It is hoped that this series will persistently challenge and stimulate the university, its colleges, departments, the National Center, and the educational community to the ends that goals will be clarified, priorities will be more appropriately ordered, methods will be more effective, and human lives will be enriched.

Celebrating our fifteenth anniversary as the National Center for Research in Vocational Education is a jubilant occasion; and it is equally delightful to have Dr. Dan Taylor, the newly appointed assistant secretary for Vocational and Adult Education in the United States Department of Education, to share this distinguished event with us as our Fifteenth Anniversary Recognition Dinner speaker.

Dr. Taylor received a bachelor's degree from the University of Iowa, and received his master's and doctorate degrees from the University of West Virginia.

Dr. Taylor's professional experiences include being the state superintendent of schools for West Virginia and a senior lecturer at Harvard Graduate School of Education.

In his presentation, Dr. Taylor presents the view that vocational education can play a key role in sh[illegible]ing and revitalizing the American economy. He contends that vocational education should focus on helping to solve the nation's economic ills. Taylor added that without a highly trained, skilled work force, no amount of economic medicine will do the trick.

Dr. Taylor is a member of Phi Delta Kappa and numerous educational organizations. He is a native of Connellsville, Pennsylvania and currently resides in Lexington, Massachusetts.

It is with great pleasure that The Ohio State University and the National Center for Research in Vocational Education welcome Daniel B. Taylor to share his presentation, "Revitalizing the American Economy: A Research and Development Focus for the 80s."

Robert E. Taylor
Executive Director
The National Center for Research in
Vocational Education

REVITALIZING THE AMERICAN ECONOMY: A RESEARCH AND DEVELOPMENT FOCUS FOR THE 80s

It is an honor to be with you today to celebrate the fifteenth anniversary of the establishment of the National Center for Research in Vocational Education at The Ohio State University. Because of the major contribution the National Center has made to improving the state of the art in vocational education research and development and because of its continually expanding responsiveness to the field of vocational education, it seems fitting that today should be a day of both congratulations and challenges.

In the last fifteen years, the National Center has grown enormously; not only in the size of its facilities, or numbers of staff, or financial resources, but also in terms of its responsiveness to existing and emerging needs in vocational education. This responsiveness is evident both in those activities supported through the National Center contract with the Office of Vocational and Adult Education and in those supported through other agencies and organizations. These research and demonstration activities have involved in excess of 50,000 people from all over the United States and the world in workshops, conferences, seminars, field tests, etc. The National Center has shown its responsiveness through the professional development experiences it offers its graduate research associates and those working in residence through the National Academy, as well as through the enormous number of publications produced here that are directed to improving the practice of vocational education.

The combination of an eminently qualified and dedicated staff and close ties with one of the finest universities in the nation make this National Center a logical place to turn as we in vocational education seek to contribute to the resolution of the complex problems facing our nation.

Like no previous time in history, the United States is faced with a need to engage in self-revitalization. There is a need to revitalize its cities, its rural communities, its energy supply, and its economy in general, as well as a need in many settings to revitalize schools. Our once-great major metropolitan cities are struggling for survival. Youth unemployment is just one off-shoot of this decline. Where urban schools, families, and communities are failing to prepare youngsters for a productive life, unemployment, the welfare cycle, crime, and violence go hand in hand. Middle-class families have been moving from the cities and businesses have been following the skilled labor force. The cities are left with a severely decreased tax base and, for the most part, a reduced skilled labor force. Problems multiply; solutions become more elusive.

Today, as a nation we are facing serious economic problems—high unemployment, double-digit inflation, high energy costs, and declining productivity. From 1959 to 1960, inflation rose to 7.2 percent. In 1978 it grew at an 8 percent rate. During the first two months of 1979 the rate increased by more than 10 percent.

We are beginning, however, to see signs of improvement in terms of the economy. In recent months, interest rates have begun to decline and the rate of inflation has begun to slow down. While the problems of inflation are by no means resolved, we are making progress at the moment.

Today there are approximately 1.5 million unemployed youths in the United States. To a great extent, youth joblessness, like adult joblessness, is concentrated among a relatively small group who lack work for extended periods of time. This group is composed largely of high school dropouts and minority youths in numbers disproportionate to their representation in the population.

Giving Youth a Better Chance (Carnegie Foundation 1979) found that such a concentration of unemployment among a small fraction of youth may have higher social costs than an even distribution of unemployment among all you might have.

In some parts of rural America, the story is not much better. In 1967, the President's National Advisory Committee on Rural Poverty reported that rural America had the nation's highest rates of poverty, illiteracy, malnutrition, infant mortality, underemployment, substandard housing, inadequate public services, and below average per capita and family incomes.

In December 1979, President Carter referred to the 1967 report and stated in his Small Community and Rural Development Policy, "Notwithstanding the progress that has been made, a disproportionate share of the nation's poor still live in rural areas—about 40 percent of the total. Virtually all of the nation's persistently poor counties are rural."

During the seventies, migration trends reversed with rural growth exceeding urban growth by more than 40 percent, except in agricultural regions where out-migration continues. Such in-and-out migrations have serious impacts on rural communities. In 1970, people moving *from* rural areas tended to be white, better educated, of prime working age, nonretired, nondisabled, and women who moved to urban areas to find jobs. Conversely, those *left behind* tended to be minority, poorly educated, of nonworking age, on social security, disabled, or nonworking females.

While many rural problems are not, in and of themselves, unique, the settings in which they are found and the people that they affect are unique. Therefore, transplanting urban solutions to solve rural problems may not be productive at all.

One of the major problems confronting both rural and urban communities is the energy crisis. We are experiencing low production of domestic sources of energy and, therefore, expect to import nearly 50 percent of the oil used in 1980. Reliance on imports is reflected in soaring costs from December 1978 to December 1979:

- Fuel oil prices increased by 62%
- Electricity increased by 11%
- Natural gas increased by 20%
- Gasoline prices increased by 52%

The time has come to work individually and collectively toward the efficient production and conservation of energy.

Historically, the United States has enjoyed a high rate of productivity. However, during the 1950s and 1960s the growth rate was only 3 percent. From 1966 to 1975 the United States productivity growth averaged 2 percent while Japan grew by 9 percent annually, Sweden by 6 percent annually, and West Germany by 5.5 percent annually. However, during 1979, for the first time, the U.S. actually suffered an "absolute loss" in level of productivity.

A continued decline in productivity or even the maintenance of the status quo would likely result in –

1. a continuation of or an increase in the already high levels of inflation;
2. a continued upward spiral in wages without a commensurate increase in buying power because of inflation;
3. a reduction in the rate of economic growth and development;
4. a rise in unemployment;
5. the exportation of jobs (not goods) to nations with higher levels of productivity that also produce high-quality goods;
6. the inefficient and wasteful use of human and material resources; and
7. eventually, the loss of our export trade due to the declining quality and high cost of United States' goods.

Increases in productivity, on the other hand, cause economic strength and vitality. This occurs because, depending on the product, greater quantities are produced per hour of labor; the quality of output increases, natural resources are used more efficientiy and with less waste and damage to the environment, and labor and technology are more efficiently and effectively applied. Improved productivity also creates jobs and holds down inflation by causing increases in supply without concomitant increases in cost. Therefore, if we are to have economic growth, reduce inflation, and create jobs, there must be an increase in national productivity.

Solutions, however, will not come easily. A more cooperative relationship, i.e., a partnership, between government, business, and labor must evolve. This new partnership approach for managing the economy may be labelled "industrial policy" or "reindustrialization." In most of the developed countries, these terms refer to using government tools—taxes, interest subsidies, investment policies, research grants, etc.—to strengthen particular sectors of the economy, and the selective removal of government controls that impede productivity. Interagency panels and study groups are currently at work to clarify the terms "industrial policy" and "reindustrialization" as they apply to the United States' needs, and to develop an administration policy statement on these issues.

Whatever the result of these deliberations, the fact remains—the time has come to act. We in vocational education can be key actors.

Vocational education has historically played an important role in response to the changing educational and economic needs of the citizens and the nation. Once, again, vocational education may play a key role in shaping and revitalizing the American economy. In the 1980s, vocational education and training programs should focus on helping to solve the nation's economic ills. I think we can contribute to the solution. Without a highly trained, skilled work force, no amount of economic medicine will do the trick.

The effective role of federal vocational education research and development is key in any revitalization effort. In the United States, the majority of research and development activities are conducted by universities, national laboratories, independent research institutes, and industry. A little over half of all research and development is financed by federal agencies. As you well know, one of the main goals of research and development lies in its contribution to policy and program development.

In and of themselves, research findings are of limited value unless and until they are utilized. We in the federal office, as well as you here at the National Center, are making great strides in the dissemination and utilization of research findings. We are building a future-oriented research agenda around four interrelated themes that are of critical importance now and will continue to be ten years down the road in America's revitalization efforts. These themes are as follows:

1. Economic Development and Productivity
2. Equity and Access
3. Youth Employment
4. Energy

Let me elaborate on each of these in sequence.

Economic Development and Productivity

Vocational education focuses on the total development of the individual; however, its capacity for impacting on the collective economic growth of the nation is not to be overlooked. Vocational educators have come to realize that unless training is coupled with a meaningful job as an outcome of the training program, students may become discouraged and even alienated from the system.

In response, many vocational educators are now actively working with state and local development agencies, private sector employers, and other educational and community-based organizations to expand job opportunities within their communities, particularly for those who have been unemployed or underemployed to more fully participate in our society.

One outstanding example of the relationship between development and vocational education that immediately comes to mind is in South Carolina. Wherein since 1960, more than sixty European companies had been persuaded to establish industrial and manufacturing plants in the state. A combination of factors is responsible for this growth in industrialization—land, tax incentives, abundant labor, and perhaps most importantly, technical education centers that train workers at no charge to the corporations.

There are similar stories elsewhere, of course. Such was not always the case, however, in South Carolina in the early 1960s. South Carolina was primarily an agrarian state, ranking forty-ninth in productivity. A state-conducted study indicated the need to diversify industry and provide opportunities for people to work. The key element in the revitalization of the state proved to be the establishment of vocational-technical schools. The South Carolina State Vocational Education Department, the Industrial Development Commission, and the governor's office collaborated to provide an educated work force that in turn created employment opportunities by attracting new industry and expanding existing industry. The state is experiencing a good employment rate overall and an in-migration of people to fill many of the new jobs.

Success stories abound in many of the states. John D. Rockefeller IV, governor of West Virginia, notes, "The program of vocational education has proved to be a vital link in the chain of economic development in West Virginia. Vocational education provides the skills needed by the people of our state to become productively employed, and provides the training essential for business and industry to remain competitive." Evidence suggests that this statement is valid for the entire appalachian region.

Thanks to the tremendous support and financial assistance from the Appalachian Regional Commission (ARC), the region of Appalachia, which consists of nearly 200,000 square miles in thirteen states and nineteen million inhabitants, now has an adequate network of vocational and technical schools. As of today, total investments in the 685 approved facilities exceed $320 million. In addition, the ARC grant monies combined with the Vocational Education Act, state, and local funds have resulted in an investment of some three-quarters of a billion dollars in vocational facilities in the region.

The vocational training provided by the schools helped decrease Appalachia's poverty population from 31 percent in 1960 to about 14 percent in 1976. Between 1965 and 1977, the region added 1.48 million jobs and growth is continuing. Per capita income is increasing. As a result, outmigration of workers from Appalachia has virtually been halted.

It is estimated that, when all ARC-funded facilities in the region become fully operational, over 400,000 students will be enrolled in vocational programs. These figures suggest that by 1980 the original goal of many of the appalachian states will be achieved—the enrollment in vocational education of 50 percent of students in grades eleven and twelve.

While many areas of the country are engaged in similar activities, there remains a need for greater emphasis on and commitment to using vocational education as a tool for economic development. In that regard, the U.S. Department of Education through the Office of Vocational and Adult Education (OVAE) has funded several programs of national significance.

The American Vocational Association has a contract with OVAE to identify innovative vocational education programs that, in conjunction with other agencies, are successful in enhancing community and economic development. When completed, the project will provide a "State-of-the-Practice" report; selected case studies; the design and development of model programs; workshop materials; and guidelines for use in initiating similar programs.

Another project, Development of Entrepreneurship Training Components for Vocational Education, offers promise for vocational education's participation in economic and community development. Benefits of entrepreneurship training includes creation of new enterprises with local leadership, creation of new jobs, stimulation of investments, and the generation of local pride and enthusiasm.

Through a working relationship with the U.S. Department of Agriculture, OVAE is participating in the sponsorship of two economic development related projects in rural America. Education and Training in Community Development for Vocational Agriculture Teachers and Teacher Educators is a program designed to prepare vocational agriculture teacher-educators to infuse economic development concepts into their curricula and to develop curricula that address the needs for economic development in rural communities. A project titled "Linking Education and Economic Development in Rural America" will focus on determining rural work force needs and on building linkages between education and economic development services and agencies to meet those work force needs.

Through its National Center contract and other research and development activities, this National Center is, also, very much a part of economic development efforts. The National Center is currently conducting eighteen different projects in this area. These projects range from the development of entrepreneurship training packages to working with the National Contractors Association.

In economic terms, productivity is the ratio of output to input. The output is measured in goods and services; the input is measured by the factors involved in production, such as human work and skills, capital, energy, technology, management, etc. Productivity increases when the quantity and quality of goods and services produced increases without a commensurate increase in the input factors. Hence, productivity may increase with the introduction of new technology; with additional education and training to develop a more highly skilled labor force; with greater work motivation and understanding of the job and work; and with the control of energy and other input costs. Productivity does not necessarily mean working harder or faster—it does mean working "smarter." Worker productivity goes up when individuals have the skills and tools needed to get the job done efficiently. Vocational education is a productivity-oriented discipline that, when integrated with basic education skills, specific job competencies, good work habits and attitudes, enhance both individual human development and the economic development of the nation.

A recent study by Theodore Barry and Associates indicates that the overall productivity of American workers declined drastically during the past seventy-five years. Reported in the January 1980 issue of *Management*, the study goes on to suggest that today's employees are only two-thirds as productive as their grandparents.

This study also indicated that lowered individual productivity not only adversely affects the nation's output of goods and services but may also contribute to inflation by decreasing the supply of available commodities and thereby driving prices upward.

Continued attention must be afforded to emphasizing productivity growth in the vocational education curriculum by addressing new technologies, encouraging conservation of resources, and by providing leadership development opportunities. Vocational education, as education for work, must be included as an integral part of all efforts to increase productivity. Investment incentives alone are not enough. A pool of highly skilled workers is one important requisite for increasing productivity. Despite the prevailing unemployment rate, the demand for skilled workers exceeds the supply. The problem is likely to continue due to the mismatch between the skills of available workers and those skills needed by industry.

Vocational education should play a key role in providing training for both skill-shortage areas and areas in which future forecasts look promising, thereby reducing unemployment and the exorbitant costs resulting from lost taxes and increased unemployment compensation.

At present, industry plays a large role in retraining the work force. In a country where jobs become obsolete in an average of eight years, and where the average worker changes occupations at least twice in a working life, it is essential for vocational education to continue to emphasize retraining and upgrading of work skills.

Equity and Access

Problems of equity in and access to vocational education and the occupations for which we provide training persist. Women, minorities, and handicapped persons face significant barriers to employment and, in some cases, to appropriate vocational education. We have been making considerable progress in this area as evidenced by recent enrollment figures, but much more needs to be done.

Expanding opportunities for special populations both in vocational education and employment is critical to revitalizing our economy as well as to assisting individuals in breaking the cycles of unemployment, underemployment, and welfare.

This office has been and continues to be particularly concerned about problems of equity and access and is currently supporting a number of research and demonstration projects, both here at the National Center and elsewhere, which focus on this issue.

Other programs of national significance include a credentialing of women's life experience project, a state planning project for special needs populations, and an accessibility to vocational programs and facilities for handicapped persons.

Youth Unemployment

Despite recent reductions in youth unemployment—for the first time in years, minority youth unemployment is below 30 percent—it remains one of our most serious national problems. According to the Vice President's Task Force on Youth Employment, "Four groups bear a disproportionate share of these problems: young women, dropouts, minorities, and youth from poor families. Anyone who belongs in two or more of these groups has a much higher chance of being unable to find a job."

In the early years of this decade, we will face a shortfall of all jobs, and a particular shortfall of good jobs for young people. Furthermore, now and in the future, the distribution of the job shortfall and resulting unemployment does not fall equally on all neighborhoods and communities. Already, rural areas and central cities are home to a disproportionate share of youth unemployment. There is a lot of new employment growth in the suburbs, but less in the central city; between 1960 and 1970, blue-collar employment in the central cities actually fell by 9 percent. Although the effects of this loss of jobs from the city have been mitigated somewhat by an out-migration of people, there has been a definite net loss of entry-level job opportunities in urban areas. Rural youth, of course, have long been faced with the difficult choice of settling for poor career opportunities or moving elsewhere.

In response to these problems the administration introduced its Youth Initiative, now referred to as the Youth Act of 1980. Its primary purpose is to "provide a broad range of employment and training opportunities for youth to improve their future employability, and to promote, to the maximum extent possible, coordination among institutions capable of providing such opportunities."

Vocational education will play a key part in implementing this law, if passed, by providing in-school and out-of-school programs for disadvantaged youth. While the investment of federal resources may seem high, helping youth develop skills to secure good jobs is much less expensive than chronic youth unemployment.

Investing federal funds in vocational education, especially in programs that will direct these resources to inner cities and depressed rural communities where they are most needed, will be one indication of the federal government's desire to be a full and effective partner in solving our most pressing national problems and aiding in the revitalization of the economy.

The U.S. Office of Vocational and Adult Education is currently supporting a number of projects that deal with youth employment. Several of these projects are being conducted under interagency agreements with the U.S. Department of Labor, Office of Youth Programs, while others are supported through Programs of National Significance. Two of these projects are the Industry Education-Labor Collaboration Project and the Vocational Education/CETA Coordination Project.

Energy

The United States has only three real choices for producing significant amounts of energy over the next ten years: coal, increasing domestic production and conservation, or improved energy efficiency. This demand for new energy sources will obviously make energy one of the growth industries of the 1980s.

The U.S. Department of Energy provides the bulk of funds for energy-related research at universities. In November of 1978, the Education Programs Division of the U.S. Department of Energy looked at 234 vocational–technical schools to see how they were addressing, or planning to address, the energy-related occupational needs of the work force. The project located twenty-four related occupational–technical programs, fourteen planned programs, and 117 short courses in nine energy-related areas. Some programs provided entry-level skills while others were aimed at upgrading employees in designing their programs in order to meet the industry's skill demands.

Vocational education recognizes the serious program implications created by the energy crisis and has begun to respond to the emerging industries and technologies that will be needed to assist the United States in relearning to efficiently produce and conserve energy. The major vehicles for impacting on this area are expanded research and curriculum development. Between 1973 and 1979, the U.S. Office of Vocational and Adult Education has invested almost 2 million dollars in energy-related projects, most of which involved curriculum development. Examples of these projects include a series on curriculum for energy use and conservation technicians; programs in laser technology; and an environmental quality and energy conservation curriculum model. The National Center is also active in these efforts to increase energy conservation in the construction trades, and in developing conservation resource materials.

Future Needs

In FY 81, the program priorities for the federal Programs of National Significance will be as follows:

1. *To Reduce Youth Unemployment*

   Proposed activities will address (a) how to effectively link vocational education with basic skill development, (b) how to improve vocational education models for youth in inner cities and in rural areas, and (c) innovative approaches to resolve the problems of retention of youth in vocational education programs.

2. *To Promote Equity*

   Proposed activities will address (a) how to increase representation and participation of special populations (women, minorities, handicapped persons, disadvantaged persons) in vocational education, (b) the development and demonstration of instructional materials for special populations, and (c) the materials dissemination and active outreach to special populations.

3. *To Improve Productivity Training*

   Proposed activities will (a) develop curricula and materials addressing new technologies, (b) install new instructional materials in vocational education classrooms, and (c) link courses and curricula developed with labor and industry.

4. *To Increase Energy Employment Opportunities*

   Proposed activities will (a) develop energy conservation instructional materials, and (b) encourage the adoption of new materials in vocational education classrooms.

Looking ahead to FY 1982, these four priority objectives will be continued but reordered and expanded:

1. *To Encourage Economic Development and to Increase Productivity*

   The U.S. Office of Vocational and Adult Education will encourage the coordination of a nationwide effort to revitalize vocational training program facilities and equipment in order to meet changing needs and trends in American business and industry, especially in rural and inner-city urban areas, and to improve the capacity of our work force to make the American economic system more competitive in world markets.

2. *To Ensure Access to and Equity in Vocational Training Opportunities*

   Through both mandated set-asides and special national initiatives, funds will be directed to expanding current vocational training opportunities to include persons in isolated rural and inner-city urban areas, and to increase the number of women, minorities, handicapped, disadvantaged, and limited English proficient persons in higher paying occupational fields.

3. *To Reduce Youth Unemployment*

   Through coordinated state and federal program development and dissemination, the problem of youth unemployment in inner-city and rural areas will be addressed. Efforts will concentrate on linking basic skills and occupational training programs, and improving guidance, outreach, and retention activities for the most seriously disadvantaged youth.

4. *To Increase Energy Conservation and Production*

   Federal, state, and local efforts will be focused on improving energy conservation in the home, workplace, schools, and farms and on increasing employment training in energy-related fields where the demand exceeds the supply of skilled workers.

Achievement of these program improvement priorities—encouraging economic development and increasing productivity, ensuring access and equity, reducing youth unemployment, and increasing energy conservation and production—is critical to revitalizing the American economy and to achieving equity of opportunity for all Americans.

By focusing our attention on these national problems, I believe we in vocational education can contribute significantly to resolving them.

I believe over the next few months and years you, here at the National Center, can and will assist in the attainment of that goal. The strides you have made along with others engaged in vocational education research and development have established a foundation for our future efforts. Now is the time for increased emphasis on these four priorities in vocational education with special attention given to their interrelationships in affecting both the economy and the individual.

The National Center can assist in this endeavor by –

1. improving national dissemination and utilization of research and development products that focus on the four priorities;

2. examining and describing critical policy and substantive issues confronting vocational education;

3. assisting in strengthening the nationwide vocational education research and development system, including research coordinating units, curriculum centers, universities, and others;

4. helping to improve the articulation among vocational education, CETA, business, industry, labor, community-based organizations, economic development organizations and agencies, and others.

It is my firm belief that we in vocational education can make a major contribution in the revitalization of America. To do so, we need a strong and responsive system of research and development. The National Center is a critical part of that system, and as such, it must provide leadership and demonstrate excellence and responsiveness in meeting our nation's needs. That is my challenge to you. I'm sure you will fulfill it.

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